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ABSTRACT

Twelve teachers and two principals from the Addison Northeast Supervisory Union School District (Vermont) met to consider what a small rural school district can do to assess its own programs and to discuss how to go about program assessment with the goal of helping schools become effective learning organizations. The district serves about 1,800 students in 5 elementary schools, a middle school, and a high school. Participants began by defining a common vocabulary of program assessment and preparing a mission statement. In defining their goals, the educators decided on assessment of the major disciplines, beginning with science. Evaluation questions were formulated in the assessment categories of inputs, implementation, and outcomes; and participants began to look for data about each question. Test results from district and state assessments, including the Vermont writing and mathematics portfolios, were acknowledged as an important source of data. The participants developed a Science Assessment Plan with data collection for a 4-year cycle, followed by an assessment committee's evaluation of the data. The experiences of this district demonstrated that a small district can establish its own evaluation plan, but that it probably cannot develop all the tools needed for evaluation on its own. An appendix presents the program assessment mission statement. (SLD)

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DISTRICT-BASED PROGRAM ASSESSMENT: ONE WAY TO CREATE *SCHOOLS THAT LEARN*

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and

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What can a small, rural public school district do to assess its own programs? How does a district begin and undertake such an effort? And can district-based program assessment help schools to become effective *learning organizations*?

In late June of 1989 after the end of the school year, I met for three days with twelve teachers and two principals from Addison Northeast Supervisory Union schools to begin to answer these questions. Addison NE, in Bristol, Vermont and four surrounding farm and mountain towns, includes five elementary schools and a middle school program and grades 9-12 high school housed in Mt. Abraham Union High. The district serves about 1800 students. Each elementary school was represented by at least one teacher, and the secondary programs were represented by two science teachers, a math teacher, and an English teacher. Two elementary principals were also active participants in our group. I was the district's four-fifths time Curriculum and

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Assessment Coordinator.

I began the process by introducing a number of concepts to the team, so that we could employ a common vocabulary. These included the terms *program* (the district's K-12 curriculum and the actuality of the instructional implementation of that curriculum), *program assessment* (identifying questions about student learning; gathering data from which to generate answers to those questions; making sense of the data and articulating conclusions about the data), *inputs* (what goes into the system of the school and classroom to create and support the program), *implementation* (teaching and learning activities), and *outcomes* (what students know and can do as a result of the program). We explored each term in detail and distinguished particularly between program assessment and other kinds of evaluation, for example, evaluation of individual students or teachers.

Once we had developed a common understanding of program assessment, our next step involved the articulation of a *program assessment mission statement*. Through a series of small group brainstorming exercises, whole group discussion, and small group writing, we generated a draft that evolved over our three days of work sessions (see the final page of this article).

We devoted an hour to discussing how to organize our first steps toward program assessment. Although there was some sentiment expressed in favor of a multidisciplinary or integrative assessment, we moved fairly quickly to agreement on a disciplinary focus. Addison NE had just completed the third year of what was to be a complete curriculum renewal. We had written new science and math curricula for grades K-12 first, which we had begun to implement: science first in 1987-88, followed by mathematics in 1988-89. Given that commitment, we agreed that it made sense to assess each major discipline independently, starting with science.

With these parameters set, we focused the remainder of our time on the following question: "What is it that we want to know about our district science program

in terms of inputs, implementation, and outcomes?" We divided into three working groups, with each group focusing on one key category of assessment. Over the last day and a half, we generated dozens of questions, considered most of these, and collaboratively honed our list of key questions to nine for each category. Examples of these questions include the following:

INPUTS

Are adequate funds available for the science program?

Do the district curriculum guidelines reflect current recommendations of the valid professional research related to science curriculum and instruction?

Are new teachers hired knowledgeable about child development and in tune with the goals of the science program?

IMPLEMENTATION

Do the teaching and learning activities support the goals of the science curriculum?

Are the teaching and learning activities reflective of: (a) the balance between physical **and** natural science; (b) the balance between required topics **and** those based on teacher and student selection; (c) thorough instruction of process skills **and** concepts/content?

OUTCOMES

Can students use science process skills to solve problems?

Does the science program achieve the following motivational and attitudinal goals: (a) students' pursuit of individual interests in science; and (b) students' expression of positive attitudes toward science?

Does the science program promote students' fulfillment of their own post-

graduate expectations and those of the community for them?

How do various sub-groups of students (i.e., gender, SES) perform in relation to the outcome goals of the science program?

In the fall of 1989, I enlisted almost all of the participants from the June work session as members of the district Program Assessment Committee. With a combination of after-school meetings and a few released half days, we moved ahead in developing the Science Program Assessment. For each question that we had agreed to incorporate in the assessment process, we needed to find or create a means for generating data that responded to that question. A few questions could be answered by the standardized CTBS tests that we already used, particularly once we learned to conduct item analyses of the various tests, so we could discern which ones matched our curricular goals, and to disaggregate the scores for various groups of students. For some questions we drafted questionnaires, which required field testing and revision. Later in the year we administered these questionnaires to teachers and students at several grade levels.

Other questions required us to search for data that was already gathered elsewhere in the district. Members of the Committee learned how to analyze documents generated by professional organizations, the state, and the district. We also invented an assessment method called the "science folder," in which teachers collected specified numbers of samples of their own instructional planning and of student work. At the end of the school year we developed a rubric for scoring these folders in relation to most of our implementation questions.

Our committee work on program assessment in 1989-90 had two themes. Although we had cut our lists of assessment questions relentlessly at our June session, we discovered throughout the next school year that we still had too many questions to follow, given our limited work time and resources. So we continued to

pare down the list in each category, finally arriving by the end of the year at seven input questions, three implementation questions, and eight outcome questions. By May 1990 we were convinced that these were a realistic number.

The second theme was double-edged. We had accomplished a great deal in developing assessment methods based on questionnaires, artifact analysis, and the use of already gathered data. But our efforts to develop performance-based assessments were stymied by our lack of time and resources.

The Assessment Committee met again for three days at the end of June 1990. We scored science folders, analyzed data, and conceptually organized our first District Assessment Report, which I would write in September. We also drafted a Mathematics Program Assessment plan, based directly on the Science Plan.

In the fall of 1990 we were fortunate to gain access to the Manipulative Skills Test of the New York State Elementary Science Program Evaluation Test (ESPET), a performance-based assessment for 4th graders in science process skills. The skills tested by the ESPET matched our science curriculum at 100%. In this school year, we included the ESPET in our assessment efforts and administered the 45 minute hands-on manipulative test to all 4th graders and a sample of 6th graders in our schools.

In the 1991-92 school year Vermont initiated a state-wide Writing Portfolio and Math Portfolio system. We integrated the Math Portfolio into our Math Program Assessment Plan. We also finally had the time and resources to engage in a comprehensive item analysis of the CTBS tests in all subject areas, with a focus on the degree of match between our district curricula and the CTBS test items. We examined the tests at grades 4, 6, and 9 and discovered high match levels for all science tests, a low match for the math test at grade 4 but higher levels of match at grades 6 and 9. These item analysis results will help district administrators and teachers make decisions in the future about how and when to administer the CTBS tests: no longer as

an isolated, single, and partial indicator of outcomes but as an integral element in a coherent program assessment plan.

In 1992-93 Addison NE conducted the fourth year of the Science Assessment Plan. What the plan calls for is data collection for a four year cycle, to be followed by an Assessment Committee evaluation of the four years of data. The Assessment Committee members met in the fall of 1993 to consider the four years of data and articulate their conclusions about the science program that flow from the data. Partly as a result of this analysis, the Committee has recommended the articulation of an integrated science, math, and technology curriculum for the district.

In 1993-94 the district began work on a Language Arts Program Assessment effort, including the Vermont Writing Portfolio. The district also followed through on the fourth year of the Math Program Assessment effort and began the first year of a new cycle of its Science Program Assessment. These various program assessment activities have continued through this current school year, the sixth year of their enactment, and their value to the district is sufficiently evident that they have survived a turnover in the offices of Superintendent and Curriculum and Assessment Coordinator.

In June 1993 the Regional Laboratory for Educational Improvement in the Northeast & Islands recognized the Addison Northeast District Math and Science Program Assessment as a "Program of Excellence." A description of the Assessment Program is included in the Lab's publication *Best Practices in Mathematics and Science Education*.

Here are the conclusions that we can share from five years of experience with this process. Can a small, rural public school district enact its own program assessment successfully? **Yes!** Can such a district then base its future curriculum development and instructional innovation on what has been learned from this

assessment? **We believe so.** Addison NE reached this stage in that process during the 1993-94 school year and began to modify its science and math curricula and instruction partly as a result of program assessment data and conclusions. Can such a district develop all the tools it needs to accomplish its program assessment? **No.** The district needs to draw on and incorporate all the appropriate assessment tools that it can gather: from its own state department of education, from other schools and states, from publishers, and from university resources.

How has the program assessment effort affected teachers, administrators, school board members and the public, and students? With the leadership of the Curriculum and Assessment Coordinator, the teachers on the Assessment Committee have developed and conducted all of the assessment activities. These teachers have played a central role in explaining program assessment to their colleagues and in engaging collegial support and involvement. Over the years teachers in the district have become increasingly interested in receiving program assessment data, in considering its meanings in relation their own teaching, and in modifying their instruction as a result of this consideration. The program assessment effort has also begun to build a system of accountability that most teachers own and value, because teachers were its primary architects.

Administrators and school board members have grown increasingly interested in learning about and weighing the assessment outcomes. We have also published a District Assessment Report each year, included assessment outcomes in newsletters to the public, and involved citizens in discussions of assessment data at our annual School Report Night and in many other community forums.

What is the value for students? That value is unfolding. The more we know precisely how well we are achieving our goals for student learning, the more we will be able both to celebrate our accomplishments and to address our failures. We can

only mitigate inadequacies in our classrooms if we know what they are. Focused, rigorous program assessment can help to provide us with the information we need to create schools where all children can succeed.

Our experience in Addison NE suggests that focused, rigorous district-based program assessment, generated and conducted by teachers as well as administrators, can help to develop school cultures where continuous improvement is the watchword not only for students but also for educators. Our experience has also shown us that the values -- commitments to inquiry, data, and reflection, and to school improvement -- and competencies -- asking productive and challenging questions, collecting rich data in response to those questions, analyzing and judging the data, and innovating based on those judgments -- that drive successful program assessment are some of the same values and competencies that create an effective *learning organization*.

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PROGRAM ASSESSMENT MISSION STATEMENT

The mission of program assessment in Addison NE is to increase the quantity and improve the quality of student learning and growth in our schools. Assessing our subject-area programs will accomplish this mission by providing the following information relating to each subject-area program:

-- the extent to which **inputs** are of high quality as well as adequate and appropriate;

-- the extent to which the curriculum is being implemented effectively (**implementation**); and

-- the extent to which the stated goals for student learning are being achieved (**outcomes**).

This information will facilitate the accomplishment of the following:

-- the evaluation of each subject-area curriculum and program in terms of inputs, teaching and learning activities (implementation), and outcomes;

-- the establishment of accountability to students, parents, other community members, and district educators in relation to Addison NE programs;

-- the informing of school boards, parents, and community members of program successes and limitations;

-- the accomplishment of needed changes in curriculum and/or program as indicated by assessment data; and

-- the generation of data to support budgetary and program requests for improving programs.

Program assessment activities should:

-- be positive and engaging to those involved, and realistic in scope in terms of time and energy;

-- be as compatible as possible with teaching and learning activities;

-- be as inherently educative and interesting for students as possible; and

-- provide useful information to teachers in an ongoing and formative manner as well as a summative manner.